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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,255	10/31/2003	Jonathan S. Lindsey	5051-644	1674

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EXAMINER

CHUNG, SUSANNAH L

ART UNIT	PAPER NUMBER
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1626

DATE MAILED: 12/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/698,255

Applicant(s)

LINDSEY ET AL.

Examiner

Susannah Chung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) 1-7 and 11-50 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/01/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claims 1-50 are currently pending in the instant application.

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-4 drawn to a method of making a phosphono-substituted dipyrromethane reacting an aldehyde.
- II. Claims 5-7 drawn to a method of making a phosphono-substituted dipyrromethane reacting a halo-substituted dipyrromethane.
- III. Claims 8-10 drawn to a 5-phosphonodipyrromethane, wherein said phosphono is selected from the group consisting of dialkyl phosphono, diaryl phosphono, and dialkylaryl phosphono, classified in various subclasses of classes 514 and 548.
- IV. Claims 11-14 drawn to a method of making a 5-phosphono, 1-acyldipyrromethane compound.
- V. Claims 15-17 drawn to a dipyrromethane selected from the group consisting of (a) 1-phosphonoacyldipyrromethanes and (b) 5-phosphono, 1-acyldipyrromethanes, classified in various subclasses of classes 514 and 548.
- VI. Claims 18-21 drawn to a method of making a 9-halo, 5-phosphono, 1-acyldipyrromethane compound.
- VII. Claims 22-24 drawn to a 9-halo, 5-phosphono, 1-acyldipyrromethane compound, classified in various subclasses of classes 514 and 548.
- VIII. Claims 25-28 drawn to a method of making a chlorin.

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- IX. Claims 29-32 drawn to a chlorin having a phosphono group coupled thereto at the 5 position, the 10 position, or both the 5 and 10 position, classified in various subclasses of classes 548.
- X. Claims 33-35 drawn to a method of making a porphyrin substituted at the 5 position with at least one phosphono group.
- XI. Claim 36 drawn to a porphyrin substituted at the 5 position and the 10 position with a phosphono group, classified in various subclasses 257, 424, and 530.
- XII. Claims 37-41 drawn to a method of making a substituted porphyrin compound.
- XIII. Claims 42-48 drawn to a method of making a phosphonic acid-substituted porphyrin or chlorin.
- XIV. Claims 49-50 drawn to a method of making coupled porphyrins.

Where an election of Group III, V, VII, IX, XI is made, an election of a single compound is further required including an exact definition of each substitution on the base molecule (i.e. 5-phosphonodipyrromethane), wherein a single member at each substituent group or moiety is selected. For example, if a base molecule is 5-phosphonodipyrromethane, wherein said phosphono group is selected from dialkyl phosphono, diaryl phosphono, and dialkylaryl phosphono, then applicant must select a single phosphono group, for example dialkyl phosphono and each subsequent variable position. In the instant case, upon election of a single compound, the Office will review the claims and disclosure to determine the scope of the independent invention encompassing the elected compound (compounds which are so similar thereto as to be within the same inventive concept and reduction to practice). The scope of an independent invention will encompass all compounds within the scope of the claim, which fall into the same

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class and subclass as the elected compound, but may also include additional compounds, which fall in related subclasses. Examination will then proceed on the elected compound AND the entire scope of the invention encompassing the elected compound as defined by common classification. A clear statement of the examined invention, defined by those class(es) and subclass(es) will be set forth in the first action on the merits. Note that the restriction requirement will not be made final until such time as applicant is informed of the full scope of compounds along with (if appropriate) the process of using or making said compound under examination. This will be set forth by reference to specific class(es) and subclass(es) examined. Should applicant traverse on the ground that the compound are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the compound to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other.

All compounds falling outside the class(es) and subclass(es) of the selected compound and any other subclass encompassed by the election above will be directed to nonelected subject matter and will be withdrawn from consideration under 35 U.S.C. 121 and 37 C.F.R. 1.142(b). Applicant may reserve the right to file divisional applications on the remaining subject matter. (The provisions of 35 U.S.C. 121 apply with regard to double patenting covering divisional applications.)

Applicant is reminded that upon cancellation of claims to a nonelected invention, the inventions must be amended in compliance with 37 C.F.R. 1.48(b) if one of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any

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amendment of inventorship must be accompanied by a petition under 37 C.F.R. 1.48(b) and by the fee required under 37 C.F.R. 1.17(i).

Markush claims must be provided with support in the disclosure for each member of the Markush group. See MPEP 608.01(p). Applicant should exercise caution in making a selection of a single member for each substituent group on the base molecule to be consistent with the written description.

Rationale Establishing Patentable Distinctiveness Within Each Group

Each Group listed above is directed to or involves the use of compounds which are recognized in the art as being distinct from one another because of their diverse chemical structure, their different chemical properties, modes of action, different effects and reactive conditions (MPEP 806.04, MPEP 808.01). Additionally, the level of skill in the art is not such that one invention would be obvious over the other invention (Group), i.e. they are patentable over each other. Chemical structures, which are similar, are presumed to function similarly, whereas chemical structures that are not similar are not presumed to function similarly. The presumption even for similar chemical structures though is not irrebuttable, but may be overcome by scientific reasoning or evidence showing that the structure of the prior art would not have been expected to function as the structure of the claimed invention. Note that in accordance with the holding of Application of Papesch, 50 CCPA 1084, 315 F.2d 381, 137 USPQ 43 (CCPA 1963) and In re Lalu, 223 USPQ 1257 (Fed. Cir. 1984), chemical structures are patentably distinct where the structures are either not structurally similar, or the prior art fails to suggest a function of a claimed compound would have been expected from a similar structure.

The above groups represent general areas wherein the inventions are independent and distinct, each from the other because of the following reasons:

Inventions I, II, IV, VI, VIII, X, XII-XIV are unrelated methods of making different products.

Inventions III, V, VII, IX, and XI are unrelated products.

Inventions II and III are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) that the process for using the product as claimed can be practiced with another materially different product or (2) that the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case, the product as claimed in Group I can be in a materially different process as shown in Invention I.

Inventions IV and V are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) that the process for using the product as claimed can be practiced with another materially different product or (2) that the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case, the product as claimed in Group I can be in a materially different process as shown in Invention I.

Inventions VI and VII are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) that the process for using the product as claimed can be practiced with another materially different product or (2) that the product as claimed can be used in a materially different process of using that product (MPEP §

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806.05(h)). In the instant case, the product as claimed in Group I can be in a materially different process as shown in Invention IV.

Inventions VIII and IX are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) that the process for using the product as claimed can be practiced with another materially different product or (2) that the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case, the product as claimed in Group I can be in a materially different process as shown in Invention XIII.

Inventions X and XI are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) that the process for using the product as claimed can be practiced with another materially different product or (2) that the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case, the product as claimed in Group I can be in a materially different process as shown in Invention XII, XIII or XIV.

In addition, because of the plethora of classes and subclasses in each of the Inventions, a serious burden is imposed on the examiner to perform a complete search of the defined areas. Therefore, because of the reasons given above, the restriction set forth is proper and not to restrict would impose a serious burden in the examination of this application.

Advisory of Rejoinder

The following is a recitation of M.P.E.P. 821.04, Rejoinder:

Where product and process claims drawn to independent and distinct inventions are presented in the same application, applicant may be called upon under 35 U.S.C. 121 to elect claims to either the product or process. See MPEP § 806.05(f) and § 806.05(h). The claims to the nonelected invention will be withdrawn from further consideration under 37 CFR 1.142. See MPEP § 809.02(c) and § 821 through § 821.03. However, if applicant elects claims directed to the product, and a product claim is subsequently

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found allowable, withdrawn process claims, which depend from or otherwise include all the limitations of the allowable product claim will be rejoined.

Where the application as originally filed discloses the product and the process for making and/or using the product, and only claims directed to the product are presented for examination, when a product claim is found allowable, applicant may present claims directed to the process of making and/or using the patentable product by way of amendment pursuant to 37 CFR 1.121. In view of the rejoinder procedure, and in order to expedite prosecution, applicants are encouraged to present such process claims, preferably as dependent claims, in the application at an early stage of prosecution. Process claims, which depend from or otherwise include all the limitations of the patentable product will be entered as a matter of right if the amendment is presented prior to final rejection or allowance. Amendments submitted after final rejection are governed by 37 CFR 1.116. Process claims which do not depend from or otherwise include the limitations of the patentable product will be withdrawn from consideration, via an election by original presentation (see MPEP § 821.03). Amendments submitted after allowance are governed by 37 CFR 1.312. Process claims which depend from or otherwise include all the limitations of an allowed product claim and which meet the requirements of 35 U.S.C. 101, 102, 103, and 112 may be entered.

Where product and process claims are presented in a single application and that application qualifies under the transitional restriction practice pursuant to 37 CFR 1.129(b), applicant may either: (A) elect the invention to be searched and examined and pay the fee set forth in 37 CFR 1.17(s) and have the additional inventions searched and examined under 37 CFR 1.129(b)(2); or (B) elect the invention to be searched and examined and not pay the additional fee (37 CFR 1.129(b)(3)). Where no additional fee is paid, if the elected invention is directed to the product and the claims directed to the product are subsequently found patentable, process claims which either depend from or include all the limitations of the allowable product will be rejoined. If applicant chooses to pay the fees to have the additional inventions searched and examined pursuant to 37 CFR 1.129(b)(2) even if the product is found allowable, applicant would not be entitled to a refund of the fees paid under 37 CFR 1.129(b) by arguing that the process claims could have been rejoined. 37 CFR 1.26(a) states that "[T]he Commissioner may refund any fee paid by mistake or in excess of that required. A change of purpose after the payment of a fee...will not entitle a party to a refund of such fee..." In this case, the fees paid under 37 CFR 1.129(b) were not paid by mistake nor paid in excess, therefore, applicant would not be entitled to a refund. In the event of rejoinder, the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103, and 112. If the application containing the rejoined claims is not in condition for allowance, the subsequent Office action may be made final, or, if the application was already under final rejection, the next Office action may be an advisory action. Form paragraphs 8.42 through 8.44 should be used to notify applicant of the rejoinder of process claims which depend from or otherwise include all the limitations of an allowable product claim.

In the event of rejoinder, the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104 - 1.106. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103, and 112. If the application containing the rejoined claims is not in condition for allowance, the subsequent Office action may be made final, or, if the application was already under final rejection, the next Office action may be an advisory action.

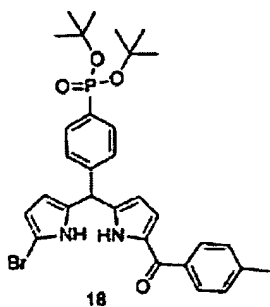
The following is a recitation from paragraph five, "Guidance on Treatment of Product and Process Claims in light of *In re Ochiai*, *In re Brouwer* and 35 U.S.C. §103(b)" (1184 TMOG 86(March 26, 1996)):

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“However, in the case of an elected product claim, rejoinder will be permitted when a product claim is found allowable and the withdrawn process claim **depends from or otherwise includes all the limitations of an allowed product claim**. Withdrawn process claims not commensurate in scope with an allowed product claim will not be rejoined.” (emphasis added)

Therefore, in accordance with M.P.E.P. 821.04 and *In re Ochiai*, 71 F.3d 1565, 37 USPQ 1127 (Fed. Cir. 1995), rejoinder of product claims with process claims commensurate in scope with the allowed product claims will occur following a finding that the product claims are allowable. Until, such time, a restriction between product claims and process claims is deemed proper. Additionally, in order to retain the right to rejoinder in accordance with the above policy, Applicant is advised that the process claims should be amended during prosecution to maintain either dependency on the product claims or to otherwise include the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder.**

During a telephone conversation with Attorney Kenneth Sibley on 11/11/2005 a provisional election was made *with traverse* to prosecute the invention of Group III, comprising Claims 8-10 drawn to a 5-phosphonodipyrromethane, wherein said phosphono is selected from the group consisting of dialkyl phosphono, diaryl phosphono, and dialkylaryl phosphono, classified in various subclasses of classes 514 and 548. Further, an election of species was made of the compound depicted as Example 18 of the specification, page 23, lines 3-4,



Affirmation of this election must be made by applicant in replying to this Office action.

Scope of Elected Subject Matter

The scope of the invention of the elected subject matter is as follows: Claims 8-10 drawn to a 5-phosphonodipyrromethane, wherein said phosphono is selected from the group consisting of dialkyl phosphono, diaryl phosphono, and dialkylaryl phosphono, classified in various subclasses of classes 514 and 548.

Based upon Applicant's election, Examiner will search various subclasses of classes 514 and 548. All compounds falling outside the class(es) and subclass(es) of the selected compound and any other subclass encompassed by the election above will be directed to nonelected subject matter and will be withdrawn from consideration under 35 U.S.C. 121 and 37 C.F.R. 1.142(b). Applicant may reserve the right to file divisional applications on the remaining subject matter. (The provisions of 35 U.S.C. 121 apply with regard to double patenting covering divisional applications.)

Scope of Withdrawn Subject Matter

Claims 1-7 and 11-50 have been withdrawn from consideration by the examiner, 37 CFR 1.142(b), as being drawn to non-elected subject matter. The withdrawn subject matter is patentably distinct from the elected subject matter as it differs in structure and element and would require separate search considerations. In addition, a reference, which anticipates one group, would not render obvious the other.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the

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application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

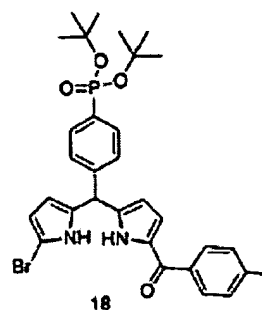
The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

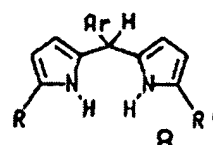
Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lindsey et al., "Investigation of the Synthesis of Ortho-Substituted Tetraphenylporphyrins," April 21, 1988, J.Org. Chem., Vol. 54, pages 828-836, especially page 833 in view of Kim et al., "Curing of Epoxides with O,O-Di-t-butyl Phenylphosphonate as Thermally Latent Initiator, September 29, 2000, J. Applied Polymer Science, Vol. 81, pages 2347-2351, especially page 2349.

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Applicants instant elected invention teaches the compound depicted as Example 18 of the

specification, page 23, lines 3-4,  18. This compound is used as an intermediate in making porphyrin compounds.

Determination of the scope and content of the prior art (MPEP § 2141.01)

Lindsey teaches dipyrromethane compounds of formula,  8. (See

Lindsey et al., "Investigation of the Synthesis of Ortho-Substituted Tetraphenylporphyrins," April 21, 1988, J.Org. Chem., Vol. 54, page 833). These products are used as intermediates for making porphyrin compounds.

Kim teaches phosphonate compounds of formula, $\text{Ph}-\overset{\text{O}}{\underset{\text{||}}{\text{P}}}(\text{O}-\text{C}(\text{CH}_3)_3)_2$. (See Kim et al., "Curing of Epoxides with O,O-Di-t-butyl Phenylphosphonate as Thermally Latent Initiator, September 29, 2000, J. Applied Polymer Science, Vol. 81, page 2349). These di-t-butyl phenyl phosphonate compounds are thermally latent initiators in the polymerization of compounds in the presence of metals such as zinc. (See abstract of article).

Ascertainment of the difference between the prior art and the claims (MPEP § 2141.02)

The difference between the prior art (of Lindsey and Kim) and the claims is that in the instant application the aryl group off the dipyrromethane group is substituted with a phosphonate group, while in the prior art of Lindsey the aryl group is unsubstituted.

Finding of prima facie obviousness – rationale and motivation (MPEP § 2142-2413)

One skilled in the art would have found the claimed compound prima facie obvious because the instantly claimed compound and the compound in Lindsey have the same dipyrromethane core structure. The motivation to make the claimed compounds derives from the expectation that structurally similar compounds would possess similar activity (i.e. both will be useful as intermediates in the production of porphyrin compounds). Although, applicant's compound differs in that the aryl group off the dipyrromethane group is substituted with a phosphonate group, while in the prior art of Lindsey it is unsubstituted, it is well known in the art that di-t-butyl phenylphosphonate is a useful intermediate for any reaction requiring the use of a metal (see Kim et al.).

Telephone Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susannah Chung whose telephone number is (571) 272-6098. The examiner can normally be reached on M-F, 8am-5pm.

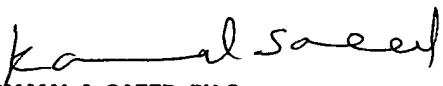
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph McKane can be reached on (571) 272-0699. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Susannah Chung
Patent Examiner, AU 1626

Date: 11/28/2005


KAMAL A. SAEED, PH.D.
PRIMARY EXAMINER